

Supplemental Preliminary Amendment
Reply to Notice of Non-Compliant Amendment
dated May 24, 2007
Application No.: 10/561,522
June 8, 2007

Please substitute the paragraph beginning at page 8, line 15 and ending at page 9, line 5 to read as follows:

Disclosure of the Invention

In accordance with the invention for solving the above problem,

(1) a bicycle-pedaling pedaling correction device comprising operative to transmit a cyclist-inputted torque of a crank gear to a driven subject via a flexible drive component of an endless belt form, said crank gear having a crank with a pedal at its distal end mounted on a central axis thereof, and rotating in conjunction with the rotation of the crank, wherein pedaling conditions of a cyclist are observed and a configuration of the crank gear is modified in a manner that a vertical radius of the crank gear is increased when the crank reaches a crank angular position where the cyclist needs to exert an increased pressure upon the pedal whereas the vertical radius of the crank is decreased when the crank reaches a crank angular position where the cyclist needs to reduce the pressure upon the pedal wherein a configuration of the crank gear is modified according to a measurement result of at least a crank angular position corresponding to a torque peak, said crank angular

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June 8, 2007

position included in pedaling characteristics of a cyclist determined from the variations of pressure exerted upon the pedal by the cyclist during one crank stroke, said pressure exerted upon the pedal previously determined by taking measurements as allowing the cyclist to operate a pedaling measurement device incorporating a crank angle sensor mounted to a circular crank gear having a crank with a pedal at its distal end mounted on a central axis thereof, and a pressure sensor for measuring the pressure exerted upon the pedal, the crank or the circular crank gear by the cyclist,

wherein the modification made in a manner that in a case where the torque peak is shifted from a crank angular position of 90° to a forward position with respect to a rotational direction of the crank gear, a distance between the central axis of the crank gear and a start point of engagement with the flexible drive component, as determined when the crank reaches the crank angular position of 90° or is in the range from a top dead center to the crank angular position of 90°, is increased, and

that the distance between the central axis of the crank gear and the start point of engagement with the flexible drive component is relatively longer when the crank reaches a crank

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June 8, 2007

angular position where the cyclist needs to increase the pressure upon the pedal during one crank stroke,

whereby the crank angular position where the cyclist needs to increase the pressure upon the pedal is indicated to the cyclist, who is intentionally allowed to physically experience the variations of the torque transmitted from said crank gear to said flexible drive component.

(2) According to the pedaling correction device as set forth in the above aspect (1), a correction device may further have an arrangement wherein the configuration of the crank gear is further modified according to the measurement result of a pedaling force determined when the crank is in the range from the crank angular position of 90° to a bottom dead center, said pedaling force included in the pedaling characteristics of the cyclist previously determined by taking measurements as allowing the cyclist to operate the pedaling measurement device,

the modification made in a manner that in a case where the cyclist is still pressing down on the pedal after passage through the bottom dead center, a distance between the central axis of the crank gear and the start point of engagement with the flexible drive component, as determined when the crank is in the

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range from the crank angular position of 90° to the bottom dead center, is decreased, and

that the distance between the central axis of the crank gear and the start point of engagement with the flexible drive component is relatively longer or shorter when the crank reaches a crank angular position where the cyclist needs to increase or decrease the pressure upon the pedal in one crank stroke.

(3) In accordance with the invention for solving the above problem, a method for correcting bicycle pedaling for transmitting a cyclist-inputted torque of a crank gear to a rear wheel via a flexible drive component of an endless belt form, said crank gear having a crank with a pedal at its distal end mounted on a central axis thereof,

wherein measurement is taken on at least a crank angular position corresponding to a torque peak, said crank angular position included in pedaling characteristics of the cyclist determined from the variations of pressure exerted upon the pedal by the cyclist during one crank stroke, said measurements previously taken by allowing the cyclist to operate a pedaling measurement device incorporating a crank angle sensor mounted to a circular crank gear having a crank with a pedal at its distal end mounted on a central axis thereof, and a pressure sensor for

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measuring the pressure exerted upon the pedal, the crank or the circular crank gear by the cyclist,

wherein a configuration of the crank gear is modified based on said determined crank angular position in a manner that in a case where the torque peak is shifted from a crank angular position of 90° to a forward position with respect to a rotational direction of the crank gear, a distance between the central axis of the crank gear and a start point of engagement with the flexible drive component, as determined when the crank reaches the crank angular position of 90° or is in the range from a top dead center to the crank angular position of 90°, is increased, and

that the distance between the central axis of the crank gear and the start point of engagement with the flexible drive component is relatively longer when the crank reaches the crank angular position, determined based on the measurement result, where the cyclist needs to increase the pressure upon the pedal during one crank stroke,

wherein the cyclist is subjected to pedaling training as riding on a bicycle equipped with the crank gear thus modified, and

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Application No.: 10/561,522
June 8, 2007

wherein the crank angular position where the cyclist needs to increase the pressure upon the pedal is indicated to the cyclist, who is intentionally allowed to physically experience the variations of the torque transmitted from the crank gear to the flexible drive component.

(4) According to the pedaling correction method as set forth in the above aspect (3), a correction method may have an arrangement wherein a pedaling force is determined when the crank is in the range from the crank angular position of 90° to a bottom dead center, said pedaling force included in the pedaling characteristics of the cyclist determined by using the pedaling measurement device,

wherein the configuration of the crank gear is modified based on said determined pedaling force in a manner that in a case where the cyclist is still pressing down on the pedal after passage through the bottom dead center, a distance between the central axis of the crank gear and the start point of engagement with the flexible drive component, as determined when the crank is in the range from the crank angular position of 90° to the bottom dead center, is decreased, and

that the distance between the central axis of the crank gear and the start point of engagement with the flexible drive

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Application No.: 10/561,522
June 8, 2007

component is relatively longer or shorter when the crank reaches the crank angular position, determined based on the measurement result, where the cyclist needs to increase or decrease the pressure upon the pedal during one crank stroke, and

wherein the crank angular position where the cyclist needs to increase or decrease the pressure upon the pedal is indicated to the cyclist, who is intentionally allowed to physically experience the variations of the torque transmitted from the crank gear to the flexible drive component.